# The E872 Monte Carlo version 4

Reinhard Schwienhorst

University of Minnesota

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# (My) problem with the old MC

- the MC and the analysis are in two different code management systems
- the MC and the analysis use two different compilation schemes
  - Makefiles vs. makoff script
- the MC and the analysis use two different control/run-time schemes
  - geometry files, control file, geant control file, input file, nonprompt neutrino file, random number file for the MC
  - all files reside in $DDAT for the analysis (except myanal.ser and myanal.ctl)

# Goals

- Make the MC look and feel like the analysis
  - Use the same code management system for MC and analysis
  - Use a makemc script to compile the MC
  - Use a single control file for the MC
  - Put all of the input files in a directory called $MCDAT
- Output directly to a daft file from the MC
  - or to a text file that can be read by mctest
  - or to no file at all

# Method

- Change all MC files to .sf format
- Use server directory for all file handling (mymc.ser)
  - It contains pointers to the geometry and data files
- Use a single control file (mymc.ctl)
- Use the perl script makemc to compile
  - same as makoff

# How to run the MC, version 4

- Get mymc.ser and mymc.ctl from the example area
- type “makemc” or “makemc -g” to create the executable.
- type “e872mc” to run it
- change the geometry file in mymc.ser
- change the run options in mymc.ctl
- to get and use a local copy of a routine:
  - “uvma fetch ghntfl.sf”
  - “makemc ghntfl”

# Output options

- Two parameters in mymc.ctl:
  - ihitfile:
    - =0: no output
    - =1: output to text file mc_hits.out
      This file can be read by mctest (no hit sorting)
    - =2: output to daft file mydaft.mc
  - idethits (for daft output):
    - =0: don’t encode detector hits, only save true MC hits
    - =1: encode detector hits for the old SF decoder
    - =2: encode detector hits for the new SF decoder
- notes:
  - The daft file only gets triggered events
  - Detector hits can be “re-encoded” in the analysis.

# Conclusion and Outlook

- The MC version 4 is written and tested
- It is not yet part of UCM
  - but will be soon
- The scripts have to be put in the right place
- The $MCDAT area has to be created

- I am looking forward to using the MC in a simple, straightforward way.